

# SEQUENCE LISTING

<110> Welcher, Andrew  
Wen, Duanzhi  
Kelly, Michael

<120> Interferon-Like Molecules and Uses Thereof

<130> 99,372-A

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<150> 60/169,720

<151> 1999-12-08

<160> 39

<170> PatentIn Ver. 2.0

<210> 1

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<212> DNA

<213> Rattus norvegicus

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<221> CDS

<222> (53)..(625)

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<222> (53)..(115)

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Leu Lys Tyr Leu Trp Leu Val Ala Leu Val Ala Leu Tyr Ile Ser Pro  
5 10 15

atc cag tct cag aac tgt gtg tat ctg gat cat acc atc ttg gaa aac 154  
Ile Gln Ser Gln Asn Cys Val Tyr Leu Asp His Thr Ile Leu Glu Asn  
20 25 30

atg aaa ctt ctg agc agc atc agg acc acc ttt ccc tta aga tgt cta 202  
Met Lys Leu Leu Ser Ser Ile Arg Thr Thr Phe Pro Leu Arg Cys Leu  
35 40 45 50

aaa gat atc acg gat ttt gag ttt cct caa gag att ctg ctg tac gtc 250  
Lys Asp Ile Thr Asp Phe Glu Phe Pro Gln Glu Ile Leu Leu Tyr Val  
55 60 65

cag cat gtg aaa aag gac ata aag gca gtc acc tat cat ata tct tct 298  
Gln His Val Lys Lys Asp Ile Lys Ala Val Thr Tyr His Ile Ser Ser  
70 75 80

ctg gcg cta att att ttc agt ctt aaa gac tcc atc tcc ctg gcg aca 346  
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gag gaa cgc ttg gaa cgt atc aga tcg gga ctt ttc aaa caa gtg cag 394  
 Glu Glu Arg Leu Glu Arg Ile Arg Ser Gly Leu Phe Lys Gln Val Gln  
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caa gct cga gag tgc atg gta gac gag gag aac aag aac acg gag gag 442  
 Gln Ala Arg Glu Cys Met Val Asp Glu Glu Asn Lys Asn Thr Glu Glu  
           115                                  120                                  125                                  130

gac agt aca tca caa cat cct cac tca gag ggc ttc aag gca gtc tac 490  
 Asp Ser Thr Ser Gln His Pro His Ser Glu Gly Phe Lys Ala Val Tyr  
                                   135                                  140                                  145

ctg gaa ttg aac aag tat ttc ttc aga atc aga aag ttc ctg gta aat 538  
 Leu Glu Leu Asn Lys Tyr Phe Phe Arg Ile Arg Lys Phe Leu Val Asn  
                                   150                                  155                                  160

aag aaa tac agt ttc tgt gcc tgg aag att gtc gtg gtg gaa ata aga 586  
 Lys Lys Tyr Ser Phe Cys Ala Trp Lys Ile Val Val Val Glu Ile Arg  
           165                                  170                                  175

aga tgt ttc agt ata ttt tac aaa cta ctc aac atg aat tgagaatcat 635  
 Arg Cys Phe Ser Ile Phe Tyr Lys Leu Leu Asn Met Asn  
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ccagcttcaa gcaagaactt agatagaagt tgtgactgct caaatgtccc caagaacgct 695

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caggggttcaa ggtagtacag tcaaaggaag tcttatgtta agcaaaagaa aaatttcagt 815

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 Glu Asn Met Lys Leu Leu Ser Ser Ile Arg Thr Thr Phe Pro Leu Arg  
           35                                  40                                  45  
 Cys Leu Lys Asp Ile Thr Asp Phe Glu Phe Pro Gln Glu Ile Leu Leu  
           50                                  55                                  60

Tyr Val Gln His Val Lys Lys Asp Ile Lys Ala Val Thr Tyr His Ile  
65 70 75 80

Ser Ser Leu Ala Leu Ile Ile Phe Ser Leu Lys Asp Ser Ile Ser Leu  
85 90 95

Ala Thr Glu Glu Arg Leu Glu Arg Ile Arg Ser Gly Leu Phe Lys Gln  
100 105 110

Val Gln Gln Ala Arg Glu Cys Met Val Asp Glu Glu Asn Lys Asn Thr  
115 120 125

Glu Glu Asp Ser Thr Ser Gln His Pro His Ser Glu Gly Phe Lys Ala  
130 135 140

Val Tyr Leu Glu Leu Asn Lys Tyr Phe Phe Arg Ile Arg Lys Phe Leu  
145 150 155 160

Val Asn Lys Lys Tyr Ser Phe Cys Ala Trp Lys Ile Val Val Val Glu  
165 170 175

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180 185 190

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<213> Rattus norvegicus

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Phe Glu Phe Pro Gln Glu Ile Leu Leu Tyr Val Gln His Val Lys Lys  
35 40 45

Asp Ile Lys Ala Val Thr Tyr His Ile Ser Ser Leu Ala Leu Ile Ile  
50 55 60

Phe Ser Leu Lys Asp Ser Ile Ser Leu Ala Thr Glu Glu Arg Leu Glu  
65 70 75 80

Arg Ile Arg Ser Gly Leu Phe Lys Gln Val Gln Gln Ala Arg Glu Cys  
85 90 95

Met Val Asp Glu Glu Asn Lys Asn Thr Glu Glu Asp Ser Thr Ser Gln  
100 105 110

His Pro His Ser Glu Gly Phe Lys Ala Val Tyr Leu Glu Leu Asn Lys  
115 120 125

Tyr Phe Phe Arg Ile Arg Lys Phe Leu Val Asn Lys Lys Tyr Ser Phe

130

135

140

Cys Ala Trp Lys Ile Val Val Val Glu Ile Arg Arg Cys Phe Ser Ile  
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Phe Tyr Lys Leu Leu Asn Met Asn  
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&lt;210&gt; 4

&lt;211&gt; 1836

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (575)..(1195)

&lt;220&gt;

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&lt;222&gt; (575)..(655)

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 taaggtaaca cgatggtaat tctttgtctc tttttcaggg aaaaaaaaaa gttatcactt 360  
 ccaaagtcgg catagtcacc cgaagtaaaa aaaaaaaaaa aaaaaaaaag cctcagaggc 420  
 aaaggaaagg ggccgcaacc ttggttaact gtgaaatgac gaatgagaaa actcctcctg 480  
 ctgaagatat tcaggtatat aaaggcacat gaaggaaaac tcaaaacatc attgtcatat 540  
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 Met Ser Thr Lys Pro Asp Met  
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att caa aag tgt ttg tgg ctt gag atc ctt atg ggt ata ttc att gct 643  
 Ile Gln Lys Cys Leu Trp Leu Glu Ile Leu Met Gly Ile Phe Ile Ala  
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ggc acc cta tcc ctg gac tgt aac tta ctg aac gtt cac ctg aga aga 691  
 Gly Thr Leu Ser Leu Asp Cys Asn Leu Leu Asn Val His Leu Arg Arg  
 25 30 35

gtc acc tgg caa aat ctg aga cat ctg agt agt atg agc aat tca ttt 739  
 Val Thr Trp Gln Asn Leu Arg His Leu Ser Ser Met Ser Asn Ser Phe  
 40 45 50 55

cct gta gaa tgt cta cga gaa aac ata gct ttt gag ttg ccc caa gag 787  
Pro Val Glu Cys Leu Arg Glu Asn Ile Ala Phe Glu Leu Pro Gln Glu  
60 65 70

ttt ctg caa tac acc caa cct atg aag agg gac atc aag aag gcc ttc 835  
Phe Leu Gln Tyr Thr Gln Pro Met Lys Arg Asp Ile Lys Lys Ala Phe  
75 80 85

tat gaa atg tcc cta cag gcc ttc aac atc ttc agc caa cac acc ttc 883  
Tyr Glu Met Ser Leu Gln Ala Phe Asn Ile Phe Ser Gln His Thr Phe  
90 95 100

aaa tat tgg aaa gag aga cac ctc aaa caa atc caa ata gga ctt gat 931  
Lys Tyr Trp Lys Glu Arg His Leu Lys Gln Ile Gln Ile Gly Leu Asp  
105 110 115

cag caa gca gag tac ctg aac caa tgc ttg gag gaa gac gag aat gaa 979  
Gln Gln Ala Glu Tyr Leu Asn Gln Cys Leu Glu Glu Asp Glu Asn Glu  
120 125 130 135

aat gaa gac atg aaa gaa atg aaa gag aat gag atg aaa ccc tca gaa 1027  
Asn Glu Asp Met Lys Glu Met Lys Glu Asn Glu Met Lys Pro Ser Glu  
140 145 150

gcc agg gtc ccc cag ctg agc agc ctg gaa ctg agg aga tat ttc cac 1075  
Ala Arg Val Pro Gln Leu Ser Ser Leu Glu Leu Arg Arg Tyr Phe His  
155 160 165

agg ata gac aat ttc ctg aaa gaa aag aaa tac agt gac tgt gcc tgg 1123  
Arg Ile Asp Asn Phe Leu Lys Glu Lys Lys Tyr Ser Asp Cys Ala Trp  
170 175 180

gag att gtc cga gtg gaa atc aga aga tgt ttg tat tac ttt tac aaa 1171  
Glu Ile Val Arg Val Glu Ile Arg Arg Cys Leu Tyr Tyr Phe Tyr Lys  
185 190 195

ttt aca gct cta ttc agg agg aaa taaggtatat ttttgggaatt aaaattcctt 1225  
Phe Thr Ala Leu Phe Arg Arg Lys  
200 205

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1836

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<213> Homo sapiens

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Leu Asn Val His Leu Arg Arg Val Thr Trp Gln Asn Leu Arg His Leu  
35 40 45

Ser Ser Met Ser Asn Ser Phe Pro Val Glu Cys Leu Arg Glu Asn Ile  
50 55 60

Ala Phe Glu Leu Pro Gln Glu Phe Leu Gln Tyr Thr Gln Pro Met Lys  
65 70 75 80

Arg Asp Ile Lys Lys Ala Phe Tyr Glu Met Ser Leu Gln Ala Phe Asn  
85 90 95

Ile Phe Ser Gln His Thr Phe Lys Tyr Trp Lys Glu Arg His Leu Lys  
100 105 110

Gln Ile Gln Ile Gly Leu Asp Gln Gln Ala Glu Tyr Leu Asn Gln Cys  
115 120 125

Leu Glu Glu Asp Glu Asn Glu Asn Glu Asp Met Lys Glu Met Lys Glu  
130 135 140

Asn Glu Met Lys Pro Ser Glu Ala Arg Val Pro Gln Leu Ser Ser Leu  
145 150 155 160

Glu Leu Arg Arg Tyr Phe His Arg Ile Asp Asn Phe Leu Lys Glu Lys  
165 170 175

Lys Tyr Ser Asp Cys Ala Trp Glu Ile Val Arg Val Glu Ile Arg Arg  
180 185 190

Cys Leu Tyr Tyr Phe Tyr Lys Phe Thr Ala Leu Phe Arg Arg Lys  
195 200 205

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<213> Homo sapiens

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Glu Asn Ile Ala Phe Glu Leu Pro Gln Glu Phe Leu Gln Tyr Thr Gln  
35 40 45

Pro Met Lys Arg Asp Ile Lys Lys Ala Phe Tyr Glu Met Ser Leu Gln  
50 55 60

Ala Phe Asn Ile Phe Ser Gln His Thr Phe Lys Tyr Trp Lys Glu Arg  
65 70 75 80

His Leu Lys Gln Ile Gln Ile Gly Leu Asp Gln Gln Ala Glu Tyr Leu  
85 90 95

Asn Gln Cys Leu Glu Glu Asp Glu Asn Glu Asn Glu Asp Met Lys Glu  
100 105 110

Met Lys Glu Asn Glu Met Lys Pro Ser Glu Ala Arg Val Pro Gln Leu  
115 120 125

Ser Ser Leu Glu Leu Arg Arg Tyr Phe His Arg Ile Asp Asn Phe Leu  
130 135 140

Lys Glu Lys Lys Tyr Ser Asp Cys Ala Trp Glu Ile Val Arg Val Glu  
145 150 155 160

Ile Arg Arg Cys Leu Tyr Tyr Phe Tyr Lys Phe Thr Ala Leu Phe Arg  
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Arg Lys

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<212> PRT

<213> Homo sapiens

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20 25 30

Ser Ser Asn Phe Gln Cys Gln Lys Leu Leu Trp Gln Leu Asn Gly Arg  
35 40 45

Leu Glu Tyr Cys Leu Lys Asp Arg Met Asn Phe Asp Ile Pro Glu Glu  
50 55 60

Ile Lys Gln Leu Gln Gln Phe Gln Lys Glu Asp Ala Ala Leu Thr Ile

65

70

75

80

Tyr Glu Met Leu Gln Asn Ile Phe Ala Ile Phe Arg Gln Asp Ser Ser  
85 90 95

Ser Thr Gly Trp Asn Glu Thr Ile Val Glu Asn Leu Leu Ala Asn Val  
100 105 110

Tyr His Gln Ile Asn His Leu Lys Thr Val Leu Glu Glu Lys Leu Glu  
115 120 125

Lys Glu Asp Phe Thr Arg Gly Lys Leu Met Ser Ser Leu His Leu Lys  
130 135 140

Arg Tyr Tyr Gly Arg Ile Leu His Tyr Leu Lys Ala Lys Glu Tyr Ser  
145 150 155 160

His Cys Ala Trp Thr Ile Val Arg Val Glu Ile Leu Arg Asn Phe Tyr  
165 170 175

Phe Ile Asn Lys Leu Thr Gly Tyr Leu Arg Asn  
180 185

<210> 8

<211> 520

<212> DNA

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Rat IFN-like  
polypeptide cDNA insert and partial pAMG21 vector  
sequence

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<221> CDS

<222> (4)..(510)

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ctg agc agc atc cgt acc acc ttt cct ctg cgt tgt ctg aaa gat atc 96  
Leu Ser Ser Ile Arg Thr Thr Phe Pro Leu Arg Cys Leu Lys Asp Ile  
20 25 30

acg gat ttt gag ttt cct caa gag att ctg ctg tac gtc cag cat gtg 144  
Thr Asp Phe Glu Phe Pro Gln Glu Ile Leu Leu Tyr Val Gln His Val  
35 40 45

aaa aag gac ata aag gca gtc acc tat cat ata tct tct ctg gcg cta 192  
Lys Lys Asp Ile Lys Ala Val Thr Tyr His Ile Ser Ser Leu Ala Leu  
50 55 60

att att ttc agt ctt aaa gac tcc atc tcc ctg gcg aca gag gaa cgc 240  
Ile Ile Phe Ser Leu Lys Asp Ser Ile Ser Leu Ala Thr Glu Glu Arg

65

70

75

ttg gaa cgt atc aga tcg gga ctt ttc aaa caa gtg cag caa gct cga 288  
 Leu Glu Arg Ile Arg Ser Gly Leu Phe Lys Gln Val Gln Gln Ala Arg  
 80 85 90 95

gag tgc atg gta gac gag gag aac aag aac acg gag gag gac agt aca 336  
 Glu Cys Met Val Asp Glu Glu Asn Lys Asn Thr Glu Glu Asp Ser Thr  
 100 105 110

tca caa cat cct cac tca gag ggc ttc aag gca gtc tac ctg gaa ttg 384  
 Ser Gln His Pro His Ser Glu Gly Phe Lys Ala Val Tyr Leu Glu Leu  
 115 120 125

aac aag tat ttc ttc aga atc aga aag ttc ctg gta aat aag aaa tac 432  
 Asn Lys Tyr Phe Phe Arg Ile Arg Lys Phe Leu Val Asn Lys Lys Tyr  
 130 135 140

agt ttc tgt gcc tgg aag att gtc gtg gtg gaa att cgt cgt tgt ttc 480  
 Ser Phe Cys Ala Trp Lys Ile Val Val Val Glu Ile Arg Arg Cys Phe  
 145 150 155

agt att ttt tac aaa ctg ctg aac atg aat taatggatcc 520  
 Ser Ile Phe Tyr Lys Leu Leu Asn Met Asn  
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&lt;210&gt; 9

&lt;211&gt; 169

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

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<223> Description of Artificial Sequence: Rat IFN-like  
 polypeptide cDNA insert and partial pAMG21 vector  
 sequence

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 1 5 10 15

Ser Ser Ile Arg Thr Thr Phe Pro Leu Arg Cys Leu Lys Asp Ile Thr  
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Asp Phe Glu Phe Pro Gln Glu Ile Leu Leu Tyr Val Gln His Val Lys  
 35 40 45

Lys Asp Ile Lys Ala Val Thr Tyr His Ile Ser Ser Leu Ala Leu Ile  
 50 55 60

Ile Phe Ser Leu Lys Asp Ser Ile Ser Leu Ala Thr Glu Glu Arg Leu  
 65 70 75 80

Glu Arg Ile Arg Ser Gly Leu Phe Lys Gln Val Gln Gln Ala Arg Glu  
 85 90 95

Cys Met Val Asp Glu Glu Asn Lys Asn Thr Glu Glu Asp Ser Thr Ser

100

105

110

Gln His Pro His Ser Glu Gly Phe Lys Ala Val Tyr Leu Glu Leu Asn  
 115 120 125

Lys Tyr Phe Phe Arg Ile Arg Lys Phe Leu Val Asn Lys Lys Tyr Ser  
 130 135 140

Phe Cys Ala Trp Lys Ile Val Val Val Glu Ile Arg Arg Cys Phe Ser  
 145 150 155 160

Ile Phe Tyr Lys Leu Leu Asn Met Asn  
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&lt;210&gt; 10

&lt;211&gt; 520

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

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<223> Description of Artificial Sequence: Rat IFN-like  
 polypeptide cDNA insert and partial pAMG21 vector  
 sequence

&lt;220&gt;

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&lt;222&gt; (4)..(510)

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 1 5 10 15

ctg agc agc atc cgt acc acc ttt cct ctg cgt tgt ctg aaa gat atc 96  
 Leu Ser Ser Ile Arg Thr Thr Phe Pro Leu Arg Cys Leu Lys Asp Ile  
 20 25 30

acg gat ttt gag ttt cct caa gag att ctg ctg tac gtc cag cat gtg 144  
 Thr Asp Phe Glu Phe Pro Gln Glu Ile Leu Leu Tyr Val Gln His Val  
 35 40 45

aaa aag gac atc aag gca gtc acc tat cat atc tct tct ctg gcg ctg 192  
 Lys Lys Asp Ile Lys Ala Val Thr Tyr His Ile Ser Ser Leu Ala Leu  
 50 55 60

att att ttc agt ctt aaa gac tcc atc tcc ctg gcg aca gag gaa cgc 240  
 Ile Ile Phe Ser Leu Lys Asp Ser Ile Ser Leu Ala Thr Glu Glu Arg  
 65 70 75

ttg gaa cgt atc cgt tct ggt ctt ttc aaa caa gtg cag caa gct cgt 288  
 Leu Glu Arg Ile Arg Ser Gly Leu Phe Lys Gln Val Gln Gln Ala Arg  
 80 85 90 95

gag tgc atg gta gac gag gag aac aag aac acg gag gag gac agt aca 336  
 Glu Cys Met Val Asp Glu Glu Asn Lys Asn Thr Glu Glu Asp Ser Thr  
 100 105 110

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tca caa cat cct cac tca gag ggc ttc aag gca gtc tac ctg gaa ttg 384
Ser Gln His Pro His Ser Glu Gly Phe Lys Ala Val Tyr Leu Glu Leu
      115              120              125

aac aag tat ttc ttc cgt atc cgt aag ttc ctg gta aat aag aaa tac 432
Asn Lys Tyr Phe Phe Arg Ile Arg Lys Phe Leu Val Asn Lys Lys Tyr
      130              135              140

agt ttc tgt gcc tgg aag att gtc gtg gtg gaa att cgt cgt tct ttc 480
Ser Phe Cys Ala Trp Lys Ile Val Val Val Glu Ile Arg Arg Ser Phe
      145              150              155

agt att ttt tac aaa ctg ctg aac atg aat taatggatcc 520
Ser Ile Phe Tyr Lys Leu Leu Asn Met Asn
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<210> 11
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<212> PRT
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<223> Description of Artificial Sequence: Rat IFN-like
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      sequence

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      20              25              30

Asp Phe Glu Phe Pro Gln Glu Ile Leu Leu Tyr Val Gln His Val Lys
      35              40              45

Lys Asp Ile Lys Ala Val Thr Tyr His Ile Ser Ser Leu Ala Leu Ile
      50              55              60

Ile Phe Ser Leu Lys Asp Ser Ile Ser Leu Ala Thr Glu Glu Arg Leu
      65              70              75              80

Glu Arg Ile Arg Ser Gly Leu Phe Lys Gln Val Gln Gln Ala Arg Glu
      85              90              95

Cys Met Val Asp Glu Glu Asn Lys Asn Thr Glu Glu Asp Ser Thr Ser
      100              105              110

Gln His Pro His Ser Glu Gly Phe Lys Ala Val Tyr Leu Glu Leu Asn
      115              120              125

Lys Tyr Phe Phe Arg Ile Arg Lys Phe Leu Val Asn Lys Lys Tyr Ser
      130              135              140

Phe Cys Ala Trp Lys Ile Val Val Val Glu Ile Arg Arg Ser Phe Ser

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145

150

155

160

Ile Phe Tyr Lys Leu Leu Asn Met Asn

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&lt;210&gt; 12

&lt;211&gt; 568

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Human IFN-like  
polypeptide cDNA insert and partial pAMG21 vector  
sequence

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (22)..(558)

&lt;400&gt; 12

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Arg Val Thr Trp Gln Asn Leu Arg His Leu Ser Ser Met Ser Asn Ser		
	15 20 25	
ttt cct gta gaa tgt cta cga gaa aac ata gct ttt gag ttg ccc caa	147	
Phe Pro Val Glu Cys Leu Arg Glu Asn Ile Ala Phe Glu Leu Pro Gln		
	30 35 40	
gag ttt ctg caa tac acc caa cct atg aag agg gac atc aag aag gcc	195	
Glu Phe Leu Gln Tyr Thr Gln Pro Met Lys Arg Asp Ile Lys Lys Ala		
	45 50 55	
ttc tat gaa atg tcc cta cag gcc ttc aac atc ttc agc caa cac acc	243	
Phe Tyr Glu Met Ser Leu Gln Ala Phe Asn Ile Phe Ser Gln His Thr		
	60 65 70	
ttc aaa tat tgg aaa gag aga cac ctc aaa caa atc caa ata gga ctt	291	
Phe Lys Tyr Trp Lys Glu Arg His Leu Lys Gln Ile Gln Ile Gly Leu		
	75 80 85 90	
gat cag caa gca gag tac ctg aac caa tgc ttg gag gaa gac gag aat	339	
Asp Gln Gln Ala Glu Tyr Leu Asn Gln Cys Leu Glu Glu Asp Glu Asn		
	95 100 105	
gaa aat gaa gac atg aaa gaa atg aaa gag aat gag atg aaa ccc tca	387	
Glu Asn Glu Asp Met Lys Glu Met Lys Glu Asn Glu Met Lys Pro Ser		
	110 115 120	
gaa gcc agg gtc ccc cag ctg agc agc ctg gaa ctg agg aga tat ttc	435	
Glu Ala Arg Val Pro Gln Leu Ser Ser Leu Glu Leu Arg Arg Tyr Phe		
	125 130 135	

cac agg ata gac aat ttc ctg aaa gaa aag aaa tac agt gac tgt gcc 483  
 His Arg Ile Asp Asn Phe Leu Lys Glu Lys Lys Tyr Ser Asp Cys Ala  
 140 145 150

tgg gag att gtc cga gtg gaa atc cgt cgt tgc ctg tac tac ttt tac 531  
 Trp Glu Ile Val Arg Val Glu Ile Arg Arg Cys Leu Tyr Tyr Phe Tyr  
 155 160 165 170

aaa ttt acc gct ctg ttc cgt cgt aaa taatggatcc 568  
 Lys Phe Thr Ala Leu Phe Arg Arg Lys  
 175

<210> 13

<211> 179

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Rat IFN-like  
 polypeptide cDNA insert and partial pAMG21 vector  
 sequence

<400> 13

Met Cys Asn Leu Leu Asn Val His Leu Arg Arg Val Thr Trp Gln Asn  
 1 5 10 15

Leu Arg His Leu Ser Ser Met Ser Asn Ser Phe Pro Val Glu Cys Leu  
 20 25 30

Arg Glu Asn Ile Ala Phe Glu Leu Pro Gln Glu Phe Leu Gln Tyr Thr  
 35 40 45

Gln Pro Met Lys Arg Asp Ile Lys Lys Ala Phe Tyr Glu Met Ser Leu  
 50 55 60

Gln Ala Phe Asn Ile Phe Ser Gln His Thr Phe Lys Tyr Trp Lys Glu  
 65 70 75 80

Arg His Leu Lys Gln Ile Gln Ile Gly Leu Asp Gln Gln Ala Glu Tyr  
 85 90 95

Leu Asn Gln Cys Leu Glu Glu Asp Glu Asn Glu Asn Glu Asp Met Lys  
 100 105 110

Glu Met Lys Glu Asn Glu Met Lys Pro Ser Glu Ala Arg Val Pro Gln  
 115 120 125

Leu Ser Ser Leu Glu Leu Arg Arg Tyr Phe His Arg Ile Asp Asn Phe  
 130 135 140

Leu Lys Glu Lys Lys Tyr Ser Asp Cys Ala Trp Glu Ile Val Arg Val  
 145 150 155 160

Glu Ile Arg Arg Cys Leu Tyr Tyr Phe Tyr Lys Phe Thr Ala Leu Phe  
 165 170 175

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<220>  
<223> Description of Artificial Sequence: Human IFN-like polypeptide cDNA insert and partial pAMG21 vector sequence

<400> 14																	
tctagaaaagg	aggaataaca	t	atg	tgt	aac	ctg	ctg	aac	gtt	cac	ctg	cgt					51
			Met	Cys	Asn	Leu	Leu	Asn	Val	His	Leu	Arg					
			1					5				10					
cgt	gtt	acc	tgg	caa	aat	ctg	aga	cat	ctg	agt	agt	atg	agc	aat	tca		99
Arg	Val	Thr	Trp	Gln	Asn	Leu	Arg	His	Leu	Ser	Ser	Met	Ser	Asn	Ser		
			15						20					25			
ttt	cct	gta	gaa	tgt	cta	cga	gaa	aac	ata	gct	ttt	gag	ttg	ccc	caa		147
Phe	Pro	Val	Glu	Cys	Leu	Arg	Glu	Asn	Ile	Ala	Phe	Glu	Leu	Pro	Gln		
			30					35					40				
gag	ttc	ctg	caa	tac	acc	caa	cct	atg	aag	agg	gac	atc	aag	aag	gcc		195
Glu	Phe	Leu	Gln	Tyr	Thr	Gln	Pro	Met	Lys	Arg	Asp	Ile	Lys	Lys	Ala		
		45					50					55					
ttc	tat	gaa	atg	tcc	cta	cag	gcc	ttc	aac	atc	ttc	agc	caa	cac	acc		243
Phe	Tyr	Glu	Met	Ser	Leu	Gln	Ala	Phe	Asn	Ile	Phe	Ser	Gln	His	Thr		
	60					65					70						
ttc	aaa	tat	tgg	aaa	gag	aga	cac	ctc	aaa	caa	atc	caa	ata	gga	ctt		291
Phe	Lys	Tyr	Trp	Lys	Glu	Arg	His	Leu	Lys	Gln	Ile	Gln	Ile	Gly	Leu		
75					80					85					90		
gat	cag	caa	gca	gag	tac	ctg	aac	caa	tgc	ttg	gag	gaa	gac	gag	aat		339
Asp	Gln	Gln	Ala	Glu	Tyr	Leu	Asn	Gln	Cys	Leu	Glu	Glu	Asp	Glu	Asn		
				95					100					105			
gaa	aat	gaa	gac	atg	aaa	gaa	atg	aaa	gag	aat	gag	atg	aaa	ccc	tca		387
Glu	Asn	Glu	Asp	Met	Lys	Glu	Met	Lys	Glu	Asn	Glu	Met	Lys	Pro	Ser		
			110					115					120				
gaa	gcc	agg	gtc	ccc	cag	ctg	agc	agc	ctg	gaa	ctg	agg	aga	tat	ttc		435
Glu	Ala	Arg	Val	Pro	Gln	Leu	Ser	Ser	Leu	Glu	Leu	Arg	Arg	Tyr	Phe		
	125					130						135					
cac	agg	ata	gac	aat	ttc	ctg	aaa	gaa	aag	aaa	tac	agt	gac	tgt	gcc		483
His	Arg	Ile	Asp	Asn	Phe	Leu	Lys	Glu	Lys	Lys	Tyr	Ser	Asp	Cys	Ala		

140

145

150

tgg gag att gtc cga gtg gaa atc cgt cgt tct ctg tac tac ttt tac 531  
 Trp Glu Ile Val Arg Val Glu Ile Arg Arg Ser Leu Tyr Tyr Phe Tyr  
 155 160 165 170

aaa ttt acc gct ctg ttc cgt cgt aaa taatggatcc 568  
 Lys Phe Thr Ala Leu Phe Arg Arg Lys  
 175

&lt;210&gt; 15

&lt;211&gt; 179

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Human IFN-like  
 polypeptide cDNA insert and partial pAMG21 vector  
 sequence

&lt;400&gt; 15

Met Cys Asn Leu Leu Asn Val His Leu Arg Arg Val Thr Trp Gln Asn  
 1 5 10 15

Leu Arg His Leu Ser Ser Met Ser Asn Ser Phe Pro Val Glu Cys Leu  
 20 25 30

Arg Glu Asn Ile Ala Phe Glu Leu Pro Gln Glu Phe Leu Gln Tyr Thr  
 35 40 45

Gln Pro Met Lys Arg Asp Ile Lys Lys Ala Phe Tyr Glu Met Ser Leu  
 50 55 60

Gln Ala Phe Asn Ile Phe Ser Gln His Thr Phe Lys Tyr Trp Lys Glu  
 65 70 75 80

Arg His Leu Lys Gln Ile Gln Ile Gly Leu Asp Gln Gln Ala Glu Tyr  
 85 90 95

Leu Asn Gln Cys Leu Glu Glu Asp Glu Asn Glu Asn Glu Asp Met Lys  
 100 105 110

Glu Met Lys Glu Asn Glu Met Lys Pro Ser Glu Ala Arg Val Pro Gln  
 115 120 125

Leu Ser Ser Leu Glu Leu Arg Arg Tyr Phe His Arg Ile Asp Asn Phe  
 130 135 140

Leu Lys Glu Lys Lys Tyr Ser Asp Cys Ala Trp Glu Ile Val Arg Val  
 145 150 155 160

Glu Ile Arg Arg Ser Leu Tyr Tyr Phe Tyr Lys Phe Thr Ala Leu Phe  
 165 170 175

Arg Arg Lys

<210> 16  
 <211> 556  
 <212> DNA  
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Human IFN-like polypeptide cDNA insert and partial pAMG21 vector sequence

<220>

<221> CDS

<222> (1)..(546)

<400> 16

cat atg ctg gac tgt aac ctg ctg aac gtt cac ctg cgt cgt gtt acc	48
His Met Leu Asp Cys Asn Leu Leu Asn Val His Leu Arg Arg Val Thr	
1 5 10 15	
tgg caa aat ctg aga cat ctg agt agt atg agc aat tca ttt cct gta	96
Trp Gln Asn Leu Arg His Leu Ser Ser Met Ser Asn Ser Phe Pro Val	
20 25 30	
gaa tgt cta cga gaa aac ata gct ttt gag ttg ccc caa gag ttt ctg	144
Glu Cys Leu Arg Glu Asn Ile Ala Phe Glu Leu Pro Gln Glu Phe Leu	
35 40 45	
caa tac acc caa cct atg aag agg gac atc aag aag gcc ttc tat gaa	192
Gln Tyr Thr Gln Pro Met Lys Arg Asp Ile Lys Lys Ala Phe Tyr Glu	
50 55 60	
atg tcc cta cag gcc ttc aac atc ttc agc caa cac acc ttc aaa tat	240
Met Ser Leu Gln Ala Phe Asn Ile Phe Ser Gln His Thr Phe Lys Tyr	
65 70 75 80	
tgg aaa gag aga cac ctc aaa caa atc caa ata gga ctt gat cag caa	288
Trp Lys Glu Arg His Leu Lys Gln Ile Gln Ile Gly Leu Asp Gln Gln	
85 90 95	
gca gag tac ctg aac caa tgc ttg gag gaa gac gag aat gaa aat gaa	336
Ala Glu Tyr Leu Asn Gln Cys Leu Glu Glu Asp Glu Asn Glu Asn Glu	
100 105 110	
gac atg aaa gaa atg aaa gag aat gag atg aaa ccc tca gaa gcc agg	384
Asp Met Lys Glu Met Lys Glu Asn Glu Met Lys Pro Ser Glu Ala Arg	
115 120 125	
gtc ccc cag ctg agc agc ctg gaa ctg agg aga tat ttc cac agg ata	432
Val Pro Gln Leu Ser Ser Leu Glu Leu Arg Arg Tyr Phe His Arg Ile	
130 135 140	
gac aat ttc ctg aaa gaa aag aaa tac agt gac tgt gcc tgg gag att	480
Asp Asn Phe Leu Lys Glu Lys Lys Tyr Ser Asp Cys Ala Trp Glu Ile	
145 150 155 160	

gtc cga gtg gaa atc cgt cgt tgc ctg tac tac ttt tac aaa ttt acc 528  
 Val Arg Val Glu Ile Arg Arg Cys Leu Tyr Tyr Phe Tyr Lys Phe Thr  
                   165                  170                  175

gct ctg ttc cgt cgt aaa taatggatcc 556  
 Ala Leu Phe Arg Arg Lys  
                   180

<210> 17  
 <211> 182  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Human IFN-like  
           polypeptide cDNA insert and partial pAMG21 vector  
           sequence

<400> 17  
 His Met Leu Asp Cys Asn Leu Leu Asn Val His Leu Arg Arg Val Thr  
   1                  5                  10                  15  
 Trp Gln Asn Leu Arg His Leu Ser Ser Met Ser Asn Ser Phe Pro Val  
                   20                  25                  30  
 Glu Cys Leu Arg Glu Asn Ile Ala Phe Glu Leu Pro Gln Glu Phe Leu  
                   35                  40                  45  
 Gln Tyr Thr Gln Pro Met Lys Arg Asp Ile Lys Lys Ala Phe Tyr Glu  
                   50                  55                  60  
 Met Ser Leu Gln Ala Phe Asn Ile Phe Ser Gln His Thr Phe Lys Tyr  
                   65                  70                  75                  80  
 Trp Lys Glu Arg His Leu Lys Gln Ile Gln Ile Gly Leu Asp Gln Gln  
                   85                  90                  95  
 Ala Glu Tyr Leu Asn Gln Cys Leu Glu Glu Asp Glu Asn Glu Asn Glu  
                   100                  105                  110  
 Asp Met Lys Glu Met Lys Glu Asn Glu Met Lys Pro Ser Glu Ala Arg  
                   115                  120                  125  
 Val Pro Gln Leu Ser Ser Leu Glu Leu Arg Arg Tyr Phe His Arg Ile  
                   130                  135                  140  
 Asp Asn Phe Leu Lys Glu Lys Lys Tyr Ser Asp Cys Ala Trp Glu Ile  
                   145                  150                  155                  160  
 Val Arg Val Glu Ile Arg Arg Cys Leu Tyr Tyr Phe Tyr Lys Phe Thr  
                   165                  170                  175  
 Ala Leu Phe Arg Arg Lys  
                   180

<210> 18  
 <211> 11  
 <212> PRT  
 <213> Human immunodeficiency virus type 1

<400> 18  
 Tyr Gly Arg Lys Lys Arg Arg Gln Arg Arg Arg  
 1 5 10

<210> 19  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Internalizing  
 domain derived from HIV tat protein

<400> 19  
 Gly Gly Gly Gly Tyr Gly Arg Lys Lys Arg Arg Gln Arg Arg Arg  
 1 5 10 15

<210> 20  
 <211> 21  
 <212> DNA  
 <213> Rattus norvegicus

<400> 20  
 atgacactga agtatttatg g 21

<210> 21  
 <211> 21  
 <212> DNA  
 <213> Rattus norvegicus

<400> 21  
 attcatgttg agtagtttgt a 21

<210> 22  
 <211> 48  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: PCR primer  
 1825-22

<400> 22  
 gaataacata tgtgtgtata tctcgatcat actatcttgg agaatatg 48

<210> 23  
 <211> 63

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR primer  
1825-21

<400> 23

ccgcggatcc attaatcat gttcagcagt ttgtaaaaaa tactgaaaca acgacgaatt 60

tcc

63

<210> 24

<211> 63

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR primer  
1909-56

<400> 24

ccgcggatcc attaatcat gttcagcagt ttgtaaaaaa tactgaaaga acgacgaatt 60

tcc

63

<210> 25

<211> 67

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR primer  
1967-32

<400> 25

ttgatctaga aaggaggaat aacatatgtg taacctgctg aacgttcacc tgcgtcgtgt 60

tacctgg

67

<210> 26

<211> 71

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR primer  
1982-14

<400> 26

ccgcggatcc attatttacg acggaacaga gcggtaaatt tgtaaaagta gtacaggcaa 60

cgacgatttc c

71

<210> 27  
<211> 72  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: PCR primer  
1967-33

<400> 27  
ccgcggatcc attatttacg acggaacaga gcggtaaatt tgtaaaagta gtacagagaa 60  
cgacggattt cc 72

<210> 28  
<211> 39  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: PCR primer  
2103-87

<400> 28  
aaggagcata tgctggactg taacctgctg aacgttcac 39

<210> 29  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: PCR primer  
1200-54

<400> 29  
gttattgctc agcgggtggca 20

<210> 30  
<211> 32  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: PCR primer  
1847-77

<400> 30  
cccaagctta ccatgacact gaagtattta tg 32

<210> 31  
<211> 33

<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR primer  
1847-78

<400> 31  
aaggaaaaaa gcggccgcat tcatgttgag tag

33

<210> 32  
<211> 35  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR primer  
1896-56

<400> 32  
acgcgtcgac tcatcaattc atgttgagta gtttg

35

<210> 33  
<211> 39  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR primer  
1896-57

<400> 33  
aaggaaaaaa gcggccgctc atcaattcat gttgagtag

39

<210> 34  
<211> 31  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR primer  
1954-45

<400> 34  
acgcgtcgac ttattatttc ctctgaata g

31

<210> 35  
<211> 42  
<212> DNA  
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR primer

1954-46

<400> 35  
aaggaaaaaa gcggccgctt attatttcct cctgaataga gc 42

<210> 36  
<211> 33  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: PCR primer  
1955-44

<400> 36  
cccaagctta ccatgagcac caaacctgat atg 33

<210> 37  
<211> 34  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: PCR primer  
1954-47

<400> 37  
cccaagctta ccatgattca aaagtgttg tggc 34

<210> 38  
<211> 53  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: PCR primer  
1954-48

<400> 38  
aaggaaaaaa gcggccgcgc ggccctcgat tttcctcctg aatagagctg taa 53

<210> 39  
<211> 41  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: PCR primer  
1954-49

<400> 39  
aaggaaaaaa gcggccgctt tcctcctgaa tagagctgta a 41